

Remarks/Arguments

Claims 39-43 are pending. Claims 39 and 43 are rejected under 35 U.S.C 103(a) as being unpatentable over Bowerman in view of King. Claims 40-42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims.


Bowerman teaches a conventional pump valve, for a reciprocating piston-type pump. The valve has a means "to impede or interrupt the velocity of the medium as the valve approaches seating, thus alleviating the jetting and abrasive actions of the medium". The faces of the seal are pushed together with a compression spring or similar means, and pushed apart by the impulse of the medium being pumped. King teaches an on-off valve having a non-extrudable sealing member that seals against a resilient surface when water pressure is on, the member comprising (non-extrudable) projections that cause the sealing surfaces to be pushed apart and held apart when the water pressure is shut off. The member must be non-extrudable to prevent its being blown out by high pressure water line surges occurring during shut off. The present invention is a valve that is operated like the Bowerman valve (faces of the seal are pushed together with a compression spring or similar means, and pushed apart by the impulse of the medium being pumped) but that has protrusions, that may be resilient or deformable or not, on one of the sealing surfaces, that serve to delay the closing of the valve during the reverse stroke so that, when the valve has closed to a certain point, particles cannot enter the region between the faces and the flow of the consequently clean fluid washes out particles already in the gap so that they are not trapped between the faces in the sealed position. (The present specification, page 22, lines 1-4.) Thus the insert in the Bowerman valve is designed and intended to slow the fluid flow to alleviate jetting and abrasion; the insert in the valve of the present invention is designed and intended to prevent trapping of particles between the sealing faces. There is no teaching in King or Bowerman to take one feature of the King valve and combine it with some features of the Bowerman valve. The Bowerman valve, the King valve, and the present valve are designed to solve three different problems in three different ways.

The Examiner points out that "As an aside the protrusion [in King] also forms a "gap" of certain size functioning to filter out particles larger than the "gap" size". However, King is not concerned with particles in the water or with the filtering out of particles; King's protrusions do not function that way because there are no particles present in the system in which King's valve is used. King is concerned with extrusion of the insert, so King makes the insert non-deformable and then puts non-deformable protrusions on the insert so that the resiliency of the other sealing face may be used to move the sealing surfaces apart. King does not teach that particles between the sealing faces could be a problem or that a portion of the design of his valve could be a solution to that problem. That the protrusions of King would form a screening gap if they were present in the valve of Bowerman and thus effect a result that neither King nor Bowerman anticipated would be recognized only after reading the present specification.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Should any additional fees be due, the Commissioner is hereby authorized to deduct said fees from Deposit Account No. 04-1579 (56.0470DIV).

Respectfully submitted,



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